Lenovo Group

Bloomberg: 992 HK EQUITY | Reuters: 0992.HK

Refer to important disclosures at the end of this report

DBS Group Research . Equity

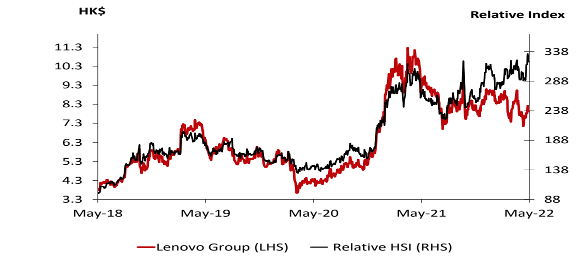
16 May 2022

BUY (Re-instating Coverage)

Last Traded Price (13 May 2022):HK$7.99(HSI : 19,899)
Price Target 12-mth:HK$11.30 (41.4% upside)

Analyst
Jim Au +852 3668 4172, jimau@dbs.com
Tsz Wang Tam +852 36684195, tszwangtam@dbs.com

Price Relative



Forecasts and Valuation

FY Mar (US$m)	2021A	2022F	2023F	2024F
Turnover	60,742	74,356	74,948	86,444
EBITDA	3,219	3,966	4,207	5,416
Pre-tax Profit	1,774	2,532	2,793	3,972
Net Profit	1,211	1,786	1,970	2,802
Net Pft (Pre Ex) (core	1,211	1,786	1,970	2,802
Net Profit Gth (Pre-ex)	68.4	47.5	10.3	42.2
EPS (US$)	0.10	0.15	0.17	0.24
EPS (HK$)	0.80	1.21	1.33	1.90
EPS Gth (%)	68.6	51.4	10.3	42.2
Diluted EPS (HK$)	0.72	1.06	1.17	1.67
DPS (HK$)	0.28	0.35	0.39	0.55
BV Per Share (HK$)	2.32	3.07	3.82	4.97
PE (X)	10.0	6.6	6.0	4.2
P/Cash Flow (X)	3.3	3.5	2.3	2.3
P/Free CF (X)	4.4	7.1	3.2	3.5
EV/EBITDA (X)	4.0	3.1	2.4	1.5
Net Div Yield (%)	3.5	4.4	4.8	6.9
P/Book Value (X)	3.4	2.6	2.1	1.6
Net Debt/Equity (X)	0.2	0.0	CASH	CASH
ROAE(%)	35.8	43.2	37.3	41.6
Earnings Rev (%):		New	New	New
Consensus EPS (US$)		0.16	0.16	0.16
Other Broker Recs:		B:25	S:1	H:5

Source of all data on this page: Company, DBS Bank (Hong Kong) Limited ("DBS HK"), Thomson Reuters

Leveraging 218m users in service-led transition

- Transforming from a hardware giant to a service-led company with growth to be driven by solutions and services
- New SSG business is projected to have a 31% CAGR in operating profit in FY22-25
- Expect higher-than-peers FY23/24 revenue of 3%/9% benefiting from rising investment in China's data centres
- Re-instate coverage with BUY and TP of HK$11.30 on improving net margin and undemanding valuation

Tech hardware giant transforming into a service-led company by leveraging the world's largest active PC user base (218m) and its strong reputation in hardware products, channeling growth into the services and solutions business.

New SSG business's operating profit is projected to grow at a CAGR of 31% in FY22-25F, on a strong industry trend and low attached rate, boosting the company's operating margin to 5.3% in FY3/25 from 3.6% in FY3/21, as SSG's operating margin is 21% vs. 4% of the group.

FY23/24 revenue and net profit forecast are 3%/9% and 8%/46% higher than the market, as we expect a stronger boost from investment in the "Eastern Data, Western Computing" initiative and higher contributions from the services and solutions business.

Valuation:

We set our TP at HK$11.30, based on an 8.5x FY23 PE, in line with the historical average. The re-rating is supported by a stronger growth profile over the next two to three years.

Key Risks to Our View:

Rigorous competition in PCs, smartphones, and servers. Longer-than-expected chip shortage and supply chain woes.

At A Glance

Issued Capital (m shrs)	12,042
Mkt Cap (HKm/US$m)	96,095 / 12,241
Major Shareholders (%)	
Legend Holdings Corporation	29.9
Union Star Ltd	6.0
Sureinvest Holdings Ltd.	5.2
Free Float (%)	58.9
3m Avg. Daily Val. (US$m)	52.75
GICS Industry: Information Technology / Technology Hardware & Equipment	

Table of Contents

Investment Summary

Lenovo is the largest PC vendor in the world, with the largest share of 23.5% in the global PC market and largest active PC user base of c.218m. Founded in 1984 and listed in 1994, it continued to expand its hardware product portfolio through the acquisition of the Motorola smartphone business and IBM's server business line in 2014. Since then, it has also been aggressively expanding its server business and initiated its transformation into a service-led business in recent years.

Lenovo's PCs and servers are highly reputed in the industry. Its popular premium laptop brand "ThinkPad" is synonymous with business laptops.

Lenovo's servers have retained the 1st rank in the top 500 list of the world's most powerful supercomputers in 2020, according to ICS. This business (Infrastructure Solutions Group [ISG]) turned operationally profitable in FY21, since acquisition, boosted by the scale of expansion and the improving efficiency of the segment.

Its solutions and services business it started in 2021 is expected to facilitate its transformation from a leading global devices company into a global devices, solutions, services, and software technology company. The new solutions & services business (SSG) is going to drive the company's transformation by delivering incremental business across smart verticals, attached services, managed services, and "X as a service" offerings name "TruScale" These offerings include "devices as a service "(DaaS).

The Intelligent Devices Group (IDG), Infrastructure Solutions Group (ISG), and Solutions and Services Group (SSG) accounted for 89.6%, 10.4%, and 8.0% of FY3/21 gross revenue, respectively.

Catalyst #1: Newly developed service business

Having the largest active PC user base of c.218m, over 60% of commercial users in PC shipments, and a single-digit service attach rate (vs. over 30% of industrial peers like Dell), means there is ample room for expansion in the SSG business by leveraging its extensive customer base.

We expect the new service business segment's operating profit to grow at a CAGR of 31.1% in FY3/22-25, on the back of 1) rising penetration of DaaS, which is expected to grow at a CAGR of 37.8% in 2021-28; 2) leveraging on its large PC user base; and 3) its high commercial user penetration (over 60%).

Its operating profit share is projected to increase from 23.5% in 9M21 to 33.8% in FY25. The incremental contribution is going to boost the company's operating margin from 3.6% in FY3/21 to 5.3% in FY3/25, as SSG has an operating margin of 21.3% compared with 3.6% of the group.

Catalyst #2: "Eastern Data, Western Computing" benefits server business

China's central government launched the "Eastern Data, Western Computing" initiative early this year and approved the construction of eight computing hubs across the country to effectively improve the nation's computing power and minimise carbon emissions. Annual investment in the above-mentioned areas is expected to exceed Rmb400bn, while the NDRC expects China's computing power demand to surge by over 20% annually during the period of the 14th Five-Year plan.

Lenovo's industry-leading server cooling technology can lower its power usage effectiveness (PUE) to 1.10 in order to meet the project's solid green targets of less than 1.25 (vs. the 1.49 average for China's data centres in 2021).

Assuming five million standard racks in China and an expected annual growth in computing power of 15%, we expect server business revenue to grow by 11.2% in FY22 and 65.0% in FY23, which is 3.0% and 53.2% higher than the market consensus, respectively.

Forecast 8% and 46% earnings growth for FY23 and FY24. We forecast total revenue growth of 0.8% in FY23 and 15.3% in FY24, 3.0% and 9.3% higher than the market in FY3/23 and FY3/24, as we are more bullish on server business revenue growth. This leads to FY3/23 and FY3/24 net profits being 8.4% and 45.7% higher than that of the market, boosting the net margin from 1.9% in FY21 to 3.2% in FY24.

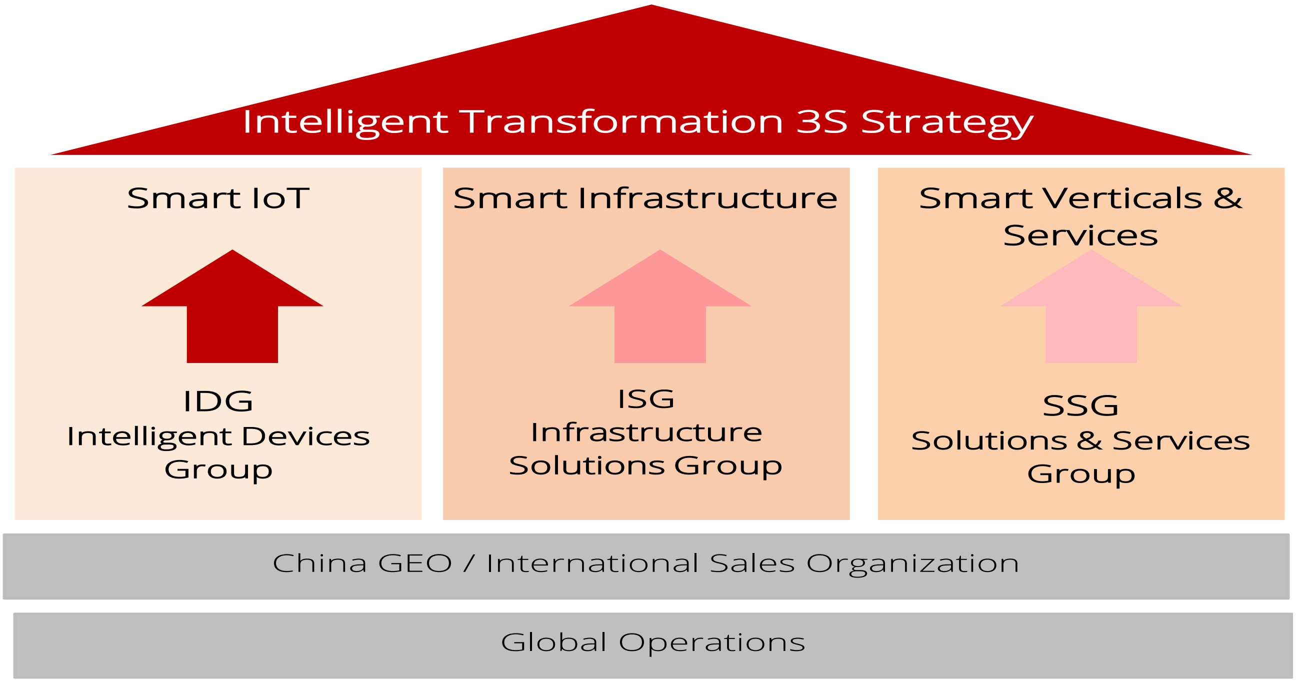
Re-instate cover with BUY rating.

We re-instate coverage on Lenovo with a BUY rating due to (1) the new services and solutions business driver not being priced in, (2) its net margin gap with its peers narrowing, and (3) an undemanding valuation of a 6.0x FY22 PE.

Lenovo is currently trading at a 6.0x FY3/23F PE, c.1 standard deviation below its five-year historical average (8.5x) because of the slowed PC industrial growth. We set our TP at HK$11.30 based on an 8.5x FY23F PE, in line with the historical average. The re-rating will be driven by a stronger growth profile over the next two to three years.

Its valuation is also below its peers' average (8.5x) because of its lower net margin due to lower revenue contribution from the services and solutions business. We expect the discount to its peers to narrow due to a higher contribution from the services and solutions business after the transformation into a service-led business.

New business segments under service-led transformation



Source: Company data, DBS HK

Valuation & Peer Comparison

We re-instate coverage on Lenovo with a BUY rating due to (1) the new services and solutions business driver not being priced in, (2) the net margin gap with its peers narrowing, and (3) an undemanding valuation of a 6.0x FY22 PE.

Lenovo is currently trading at c.1 standard deviation well below its five-year historical average (8.52x) because of slowing PC industrial growth.

We set our TP at HK$11.30 based on an 8.5x FY23F PE, in line with the historical average. We expect a re-rating will be driven by a stronger growth profile over the next two to three years.

Lenovo's FY3/22F PE is also at a 46.6% discount to the median of its peers (8.51x), mainly due to the low contribution from the high-margin services and solutions business. We also expect the valuation discount to its peers to narrow due to the higher contribution from its services and solutions business after its transformation into a service-led business.

Peer comparison

Company Name	Code	Currency	Price Local$	Mkt Cap US$m	Fiscal Yr	PE 22F x	PE 23F x	Yield 22F %	Yield 23F %	P/Bk 22F x	P/Bk 23F x	EV/EBITDA 22F x	EV/EBITDA 23F x	ROE 22F %	ROE 23F %
Lenovo Group*#	992 HK	HKD	7.99	12,256	Mar	6.8	4.8	4.8	6.9	2.1	1.6	2.8	1.8	37.3	41.6
Acer	2353 TT	TWD	28.35	2,895	Dec	10.3	11.3	6.5	6.3	1.2	1.2	2.4	2.6	11.9	10.7
Asustek Computer	2357 TT	TWD	332.5	8,275	Dec	7.6	8.6	9.3	8.4	1.1	1.0	4.2	4.4	13.9	12.2
Inspur Software 'A'	600756 CH	CNY	12.47	596	Dec	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cisco Systems	CSCO US	USD	48.29	200,605	Jul	14.0	13.0	3.1	3.2	4.8	4.2	10.5	10.2	31.5	31.7
Dell Technologies C#	DELL US	USD	43.74	33,267	Jan	6.5	6.1	3.0	3.2	n.a.	n.a.	6.1	6.0	44.9	128.5
Hewlett Packard Enter.	HPE US	USD	15.62	20,308	Oct	7.4	7.0	3.1	3.3	0.9	0.9	4.7	4.5	12.1	11.6
Hp	HPQ US	USD	35.84	37,753	Oct	8.4	8.2	2.8	3.0	n.a.	n.a.	7.0	7.5	n.a.	n.a.
Apple	AAPL US	USD	142.56	2,307,359	Sep	23.2	21.7	0.6	0.7	36.8	32.2	18.7	18.2	156.6	147.4

 # FY22: FY23; FY23: FY24

*Source: Thomson Reuters, *DBS HK*

Key Risks

Intensified logistics constraints and supply chain woes caused by potential lockdowns. Although Lenovo has a supply chain with a global footprint, it has spent extra resources on minimising the impacts of component shortages on device manufacturing. If the lockdowns in China persist or intensify due to a potential pandemic outbreak, manufacturing may be further interrupted due to a labour shortage or the delivery of goods may be impacted by transportation disruptions, resulting in shipments being delayed or orders being cancelled by customers.

Lenovo's operation is widely distributed in China. It currently has principal facilities in Beijing and research centres in Beijing, Shanghai, Shenzhen, Xiamen, Chengdu, Nanjing, and Wuhan. It operates manufacturing facilities in Chengdu and Hefei. This may help minimise the risks posed by regional lockdowns in China.

Unexpected deterioration of consumer sentiment toward PCs and smartphones due to inflation and geopolitical conflict. The current sluggish growth in global PC and smartphone shipment is due to weak consumer sentiment and supply chain woes in 2022 after the pandemic. Shipment growth is expected to resume in 2H22 through to 2023 once the chip shortage is resolved and consumer sentiment recovers, driven by an increase in consumer spending after the lockdowns.

However, consumer sentiment may turn negative, especially with concerns around inflation and geopolitical instability. Rising component and transportation costs and the recent lockdowns in Shanghai may also accompany it. Any prolonged negative consumer sentiment will extend the sluggish growth in shipments of both PCs and smartphones.

Fierce competition in server business. The server business has become much more competitive over the past decade due to the entry of Chinese tech companies like Huawei and Sugon. The market share of the top five global players has decreased from 59.3% in 4Q16 to 51.3% in 3Q21.

Inspur and Huawei servers have a lower ASP compared with that of Lenovo and other traditional players like Dell and HPE. Their products satisfy the growing demand in some cloud computing areas that do not require the finest build quality or stability, and have therefore gained market share over the past few years, especially in China. The threat from new entrants remains, as the trend of localising key technologies continues. Vendors like Lenovo, with a premium product price, have to differentiate their product offering by focusing on R&D.

SWOT Analysis

Strengths	Weaknesses
• Globally, largest PC manufacturer with largest active PC user base of c.218m • Global footprint in operational hubs, research centres, manufacturing facilities, and call centres in 180 countries in the world. A flexible supply chain to tackle the supply chain constraints during the pandemic • Highly reputed high-quality product brand in notebook and desktop PC segments	• Limited room for PC market share growth due to vigorous competition • Low gross margin in hardware business, especially smartphones and tablets

Opportunities	Threats
• Promising growth for high-profit margin services and solutions business, leveraging on the largest global PC user base • The new normal work and entertainment habitats resulting from the pandemic boost cloud data demand, and thus demand for servers and solutions like cloud management and multi-cloud • Increase in server investment driven by the "Eastern Data, Western Computing" project • The boom in demand for edge computing, hybrid cloud, and AI deployment due to growth in new applications like smart retail, manufacturing, and education	• Unstable component costs in some major metal and raw material exporting countries due to the geopolitical conflict • Logistics constraints due to potential intensification of COVID-19 lockdown measures in China • Competition threat from both local and international markets/price war in the PC market

Source: DBS HK

Critical Factors

The critical factors for Lenovo are 1) services and solutions revenue/PC shipment volume ratio, 2) server shipment volume, and 3) PC shipment growth.

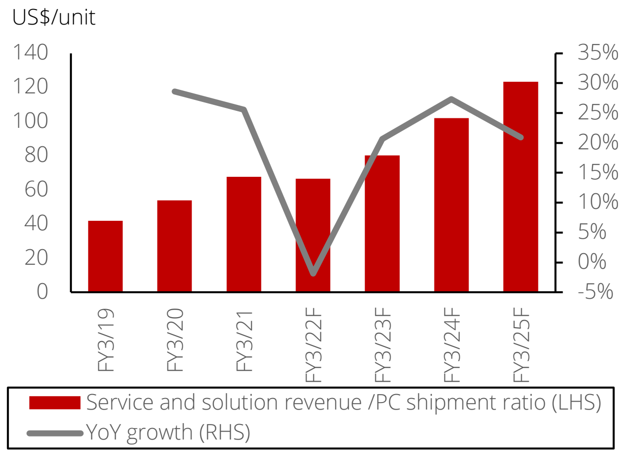
1) Services and solutions/PC shipment volume ratio

The newly structured services and solutions segment brings together all the IT solutions including attached and managed services and "As-a-Service" across PCs, infrastructure, and smart verticals. A higher services revenue generated from the sale of hardware devices indicates a more effective transformation of hardware sales into service revenue.

Lenovo's service attach rate currently remains at a single digit, compared with over 30% of some peers like Dell, indicating much room for improvement.

The ratio increased from US$41.9/unit in FY17/18 to US$67.7/unit in FY20/21, at a 27.1% CAGR. We expect this ratio to further grow at a CAGR of 16.2% to US$123.4/unit in FY3/25 on the back of the industrial trend of increased DaaS penetration and the higher service subscription potential of the premium and commercial PC user base (c.60%).

Services and solutions/PC shipment ratio and growth



Source: Company data, DBS HK

2) Rebounding server shipment volume to lead to economies of scale in ISG

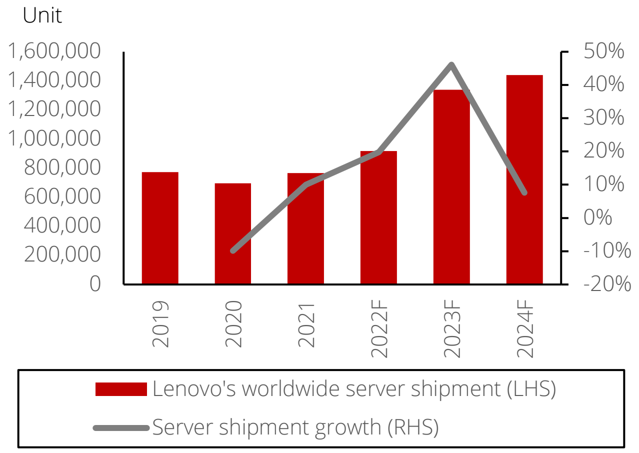
Shipment volume is the direct proxy of the performance of ISG. There is ample room for growth in Lenovo's server market share, as it only accounted for 6.2% of worldwide server shipments in 2021, compared to its 23.5% market share in PC shipments.

The company's server shipments grew at a CAGR of 0.2% in 2018-2021. We forecast shipments to accelerate at a CAGR of 21.6% from 2021-2024 to reach 1.38m unit, driven by (i) increasing cloud computing and storage demand under the new normal of remote work and a surge in data creation for new entertainment content like short video and (ii) the growing need for edge computing in new applications like smart retailing, smart manufacturing, and autonomous driving.

The segment's operational efficiency has been improving and turning operating profits with the increase in the scale of server shipments. The segment accounted for 10.4% of revenue while contributing 0% to profit in FY3/21. Notably, the profit gain from an incremental operating margin can be significant.

In that vein, we expect the operating margin to increase from -2.7% to 4.2% in FY3/25, mainly due to 1) the ramping up of the scale of the server business and 2) the increasing contribution from the high-margin storage server business.

Server shipment volume ratio and growth



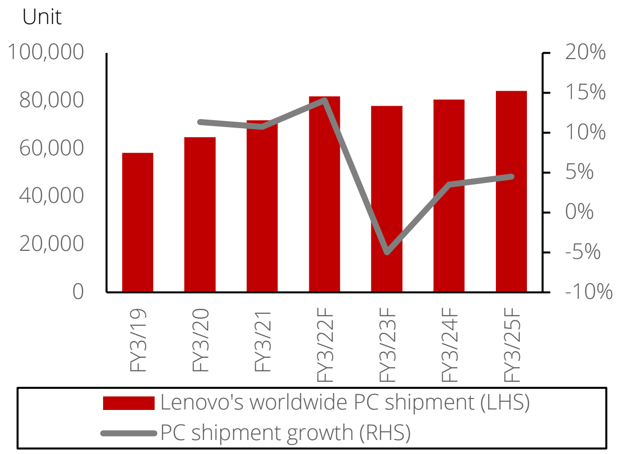
Source: DBS HK

3) PC shipment growth

The IDC segment accounted for the largest share of revenue of c.89.6% in FY3/21. 81.3% of the revenue comes from PC sales. Therefore, PC sales shipment growth is a direct proxy of the segment's growth, besides the change in ASP.

After two years of strong double-digit growth during the pandemic, we expect the shipment growth to remain stable at a CAGR of 0.9% in FY22-FY25 based on its strong, leading position in China so as to ride on the growing enterprise & small and medium business (ESMB) need and growing penetration of premium devices such as gaming laptops like "Legion".

PC shipment volume ratio and growth



Source: IDC, DBS HK

Financials

Revenue: We expect Lenovo's FY22/23/24F revenue to grow by 22.4%/0.8%/15.3% mainly due to 1) strong PC demand in 2021 during the global outbreak of the pandemic, 2) strong server business growth in China due to the expected national computing power increase, and 3) the promising growth of the services and solutions business.

Fig. Segmental breakdown (US$m)

FY Mar	2020A	2021A	2022F	2023F	2024F
Revenues (US$ m)					
IDG	45,216	54,411	64,615	64,000	68,614
ISG	5,500	6,331	7,562	8,407	13,876
SSG	0	0	5,445	6,240	8,222
Intersegment cancellation	0	0	-3,266	-3,700	-4,268
Total	50,716	60,742	74,356	74,948	86,444
Operating profit (US$					
IDG	2,302	3,107	4,712	4,800	5,415
ISG	-225	-169	5	40	587
SSG	0	0	1,162	1,448	1,990
Intersegment cancellation	0	0	-963	-1,000	-1,374
Total	2,076	2,939	4,915	5,288	6,618
Operating Margins (%)					
IDG	5.1	5.7	7.3	7.5	7.9
ISG	-4.1	-2.7	0.1	0.5	4.2
SSG	N/A	N/A	21.3	23.2	24.2
Total	4.1	4.8	6.6	7.1	7.7

Source: Company, DBS HK

Intelligent Devices Group: We forecast FY22/23/24F revenue growth to slow down to 18.8%/-1.0%/7.2% after strong growth of c.20% over two years in FY21 and 9MFY22 during the pandemic. The resumption of growth in FY/24F is mainly driven by the 1) continuation of the smartphone shipment share gain, 2) restoration of PC growth after supply chain woes ease, and 3) increase in ASP on a premiumisation of PCs.

Infrastructure Solutions Group: We expect FY22/23/24F revenue to increase by 19.4%/11.2%/65.0%, mainly due to:

1) Incremental server investment in China supported by the "Eastern Data, Western Computing" project

2) The new normal of remote work and data creation driven by an increase in entertainment applications after the pandemic, which together boosts data demand from both cloud service clients and enterprise & small and medium businesses (ESMBs)

3) The growing demand for edge computing in smart retail, smart factory, smart education, and autonomous driving

Solutions and Services Group: We project FY22/23/24F revenue to grow by 11.9%/14.6%/31.8%, riding on 1) the industrial trend of the growing of DaaS (devices as a service) penetration, which is expected to grow at a CAGR of 37.8% from 2021 to 2028 and 2) leveraging Lenovo's no.1 position in terms of its PC user base and extensive exposure to commercial PC and ESMB infrastructure. We expect the service attach rate to increase and the gap with its PC and server peers to narrow in the coming few years.

Improving gross profit margin: We expect a slight improvement in the gross margin from 16.1% in FY3/21 to 18.9% in FY3/25 due to stable margins in the PC and server businesses and an increasing contribution from the higher margin SSG segment over the next few years.

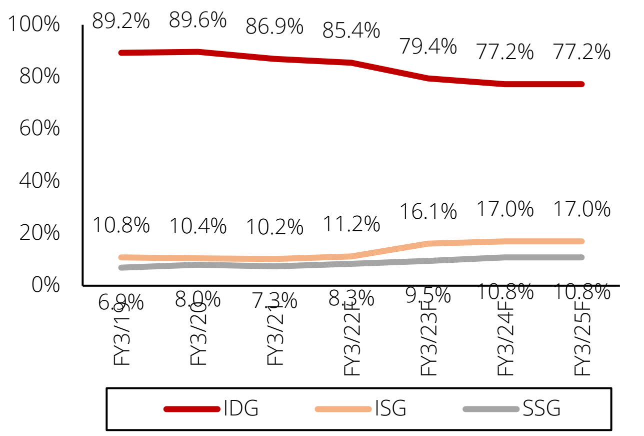
Stable operating expenses: We expect the operating expenses/sales ratio to remain steady at 12.6%, as the increase in cost efficiency via economies of scale is expected to be offset by the increase in research expenditure and sales and marketing costs incurred to promote the new services and solutions business and servers in the next three years.

Financing cost: As the company's net margin is thin, its finance cost took up a significant part of its net profit – c.68.3% and 34.7% in FY3/20 and FY3/21. Meanwhile, Lenovo's credit rating has been upgraded to the investment grade over the past two years. The company's average financing cost has decreased from 9.8% to 9.2%, down 0.6ppt in FY3/2021 due to decreased loan interest and factoring cost, resulting in a 2.3% cost saving that is reflected in the net profit.

We see a high potential and room for further improvement in Lenovo's credit rating in the coming years on the back of its EBITDA growth and deleveraging expectation. This should result in a further decrease in the company's average financing cost, supporting net profit growth.

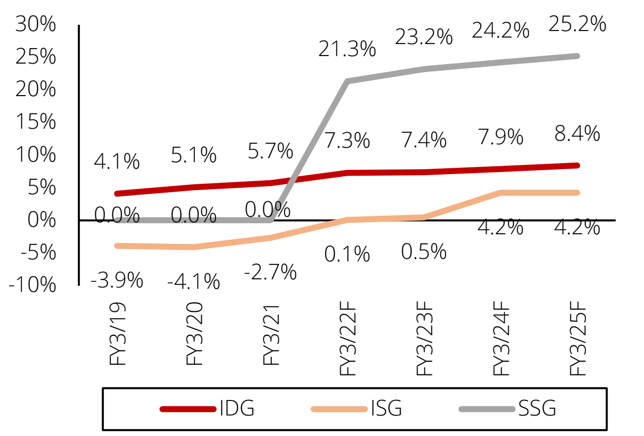
Healthy balance sheet: The group had total debt of US$3.83bn and net cash of US$81.0m as of Dec 2021. Lenovo's historical capital expenditure primarily included investment in plant and machinery, patents, and technology. The capital commitments increased slightly from US$141.6m to US$157.1m, mainly due to incremental investment in financial assets.

Revenue share of business segments



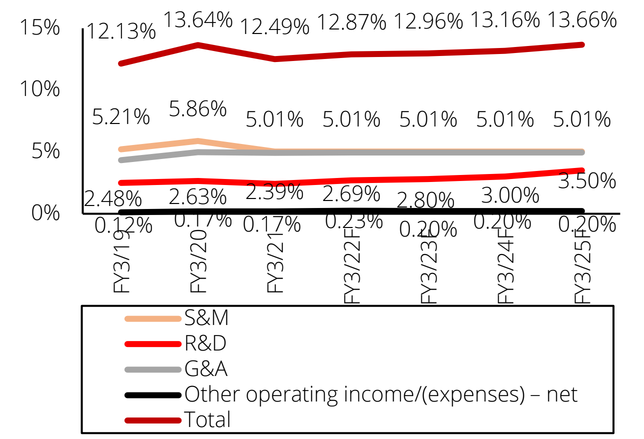
Source: Company data, DBS HK

Operating margin of business segments



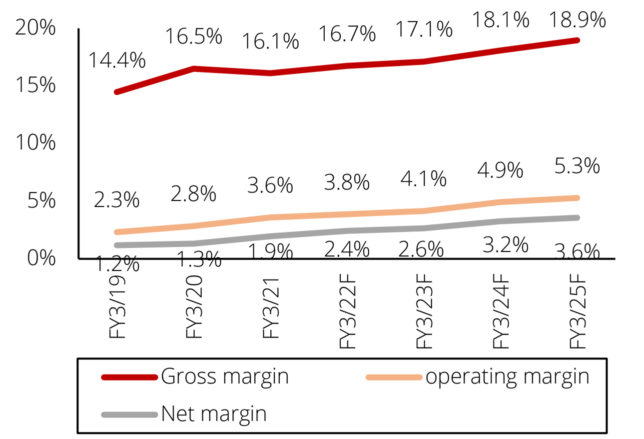
Source: Company data, DBS HK

Opex as a % of revenue



Source: Company data, DBS HK

Margin trend



Source: Company data, DBS HK

Environment, Social, & Governance (ESG)

Long-Term Incentive Programme ("LTI Programme") The company operates an LTI Programme which was adopted in 2005 and amended in 2008 and 2016. The purpose of the LTI Programme is to attract, retain, reward, and motivate executive and non-executive directors, senior management, and selected top-performing employees of the company and its subsidiaries while reinforcing a direct alignment with shareholders' interests. Under the LTI Programme, the company maintains two types of equity-based compensation vehicles: (i) Share appreciation rights, and (ii) restricted share units. The employee turnover rate in FY3/21 is a single digit of 8% under the incentive programme.

The group makes a consistent effort in mitigating environmental impact, as it explores the path towards net-zero emissions by 2050 on top of its current 2030 goals of reducing 50% of Greenhouse gas. To capitalise on growing ESG awareness, the group is broadening sustainability and incorporating innovative ESG features, such as a CO2 offset service, into its services business, thereby ensuring its ability to help customers meet their ESG goals too. All of these corporate efforts reflect the high standards the group has set itself as a responsible corporate citizen. Lenovo already achieved 1/5 of the target of reducing absolute Scope 1 and Scope 2 GHG emissions by 50% by FY3/21.

Universum Most Attractive Employer. Lenovo was recognised as one of the World's Most Attractive Employers by Universum, an organisation that surveys groups of future talent to provide insights into company characteristics they find most attractive in a potential employer, as well as who they perceive to be their ideal employer.

Among 2020 HR Asia's Best Workplaces in Asia. Lenovo was recognised by HR Asia as one of the Best Companies to Work for in Asia in 2020. The award recognises companies for high levels of employee engagement, talent development, workplace culture, as well as HR operational excellence.

Member of 2020 Hang Seng Corporate Sustainability Index. Lenovo was rated AA by the Hong Kong Quality Assurance Agency in 2020, achieving the best overall score in the IT industry. This was the 10th consecutive year it was included in this ranking. The company was also named as one of the initial members of the new Hang Seng TECH Index, which recognises the 30 largest qualifying technology companies listed on the Hong Kong Stock Exchange.

Competitive Landscape

(1) PCs: Steady PC business

The global PC market is mature and concentrated, with the top five players – Lenovo, HP, Dell, Apple, and Acer – accounting for more than 68.6% of the market in 2021, according to IDC. The market shares of Lenovo, HP, Dell, and Acer have been stable for the past five years.

We believe Lenovo will maintain the top position in the PC market in the coming years on the back of 1) its strong reputation as a "Think Brand" in global commercial spaces, 2) its strong leading position in China riding on its growing SEMB need, and 3) growing penetration in premium devices such as gaming laptops like "Legion". We expect Lenovo's PC shipments to grow at a CAGR of 0.9% in 2022-2025, with its market share to be maintained at c.24%.

(2) Servers: Server business gaining market share

The global X86 server segment is less concentrated than the PC market. The top five players accounted for 50% of the market in 2021. The top four players – Dell EMC, Inspur, HPE, and Lenovo – have maintained their top four positions over the past few years while Huawei, which was in the fifth position, was surpassed by Super Micro after the technology ban on Huawei in 2Q21.

Lenovo's market share has been increasing from 5.5% in 4Q20 to a years-high of 7.0% in 3Q21 on the back of growing cloud computing demand as a result of the new normal of remote working, learning, and entertainment, and at the expense of Huawei's market share.

We expect Lenovo's server market share in China to increase to 14% in 2024 mainly due to:

1) The competitive edge it gets due to its market-leading server cooling technology by riding on the incremental server investment in China, which is supported by the massive capital investment in computing hubs in the "Eastern Data, Western Computing" initiative

2) Its R&D investment in edge computing and hybrid cloud solutions aimed at capturing the growing demand for edge computing in the areas of smart retail, smart factory, and smart education worldwide

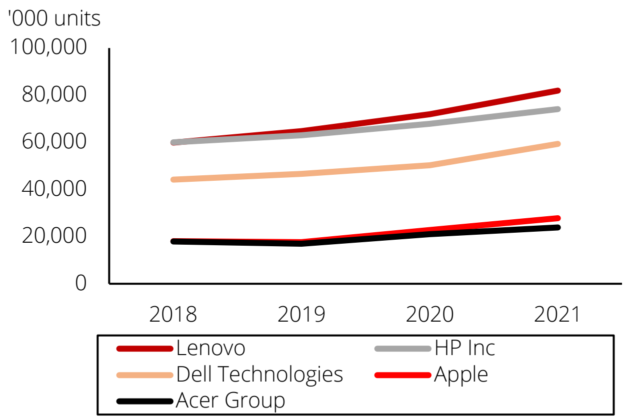
(3) Services and solutions: Ample room for improvement in attached service

Global PC and service hardware peers like HP and Dell developed their attached services and solutions business, which includes DaaS and cloud, long before Lenovo. In FY21, service revenue accounted for 21.1% of Dell's total revenue, while that of Lenovo was only 8.0% in FY3/21.

There is also ample room for improvement in Lenovo's service attach rate, which it is currently maintained at a single digit (vs. over 30% of industrial peers like Dell).

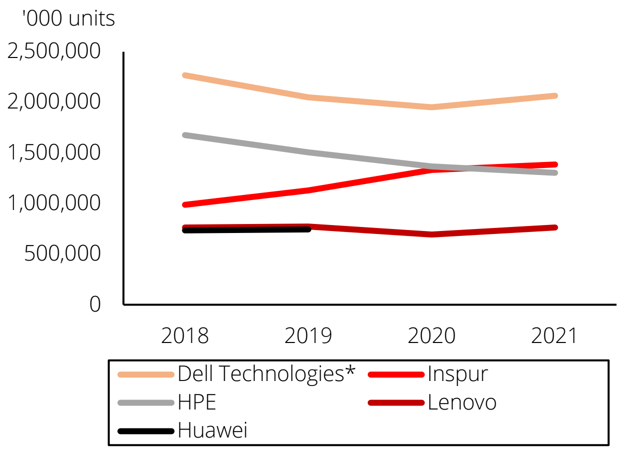
These indicate a high growth potential in the services and solutions business. Having the largest active PC user base of c.218m and a tier 1 product reputation, Lenovo's new platform is well equipped to capture the industrial growth by leveraging its extensive customer base.

Top 5 vendors' PC shipments



Source: IDC, DBS HK

Top 5 vendors' server shipments



Source: IDC, DBS HK

Sector Outlook

Industrial PCs

Traditional PC shipment growth slows after the pandemic

Traditional PC shipment experienced the strongest growth in over a decade, at 13.1% and 14.8%, in 2020 and 2021, respectively, driven by growing work from home and online learning needs.

However, after two years of strong double-digit growth, the traditional PC market, including desktops, laptops, and workstations, has slowed down to a total shipment revenue of c.80,500 units in 1Q22, down 5.1% y-o-y due to ongoing supply chain and logistics challenges.

IDC predicts overall PC shipments will revert to a normal CAGR of c.2.6% in 2022-26 to reach a shipment volume of 396.6m units in 2026 after the chip shortage is resolved in 2023. This will be mainly attributed to the need for high-performance devices such as gaming PCs and premium devices.

For gaming PCs, which include both desktop and notebook PCs, unit shipments are expected to grow from 41.3m in 2020 to 52.3m in 2025, according to IDC, while the ASPs are expected to grow from $925 as of last year to $1,007 in 2025. These are driven by the increasingly accessible price point and capability to handle high-performance computing tasks like video editing, which has seen an increase in popularity, outside gaming.

Server industry

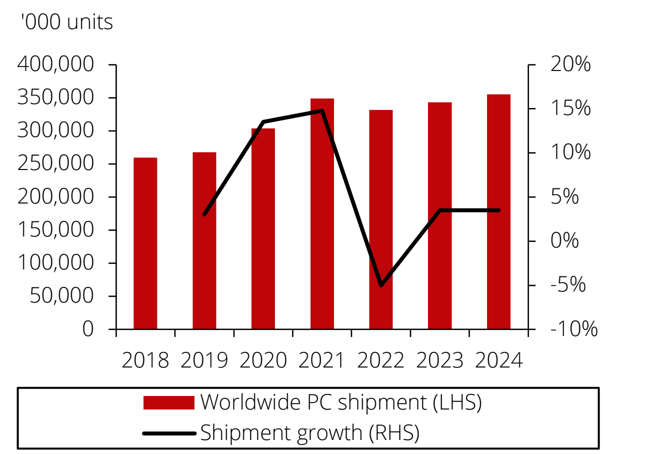
Global server growth is expected to resume at a high single digit rate. The global x86 server market weathered the pandemic market shock in 2020, and subsequently, the economic turmoil and supply chain disruptions during 2021, growing at over 6% y-o-y in each of those two years to US$93.2bn. The market is expected to grow at a CAGR of c.9% in 2021-2024 to US$120.7bn. This is attributed to incremental computing power demand and storage cloud demand driven by the emergence of new technology applications like IoT, AR/VR, and autonomous driving.

China's server growth is higher than the industry's. Accelerated computing servers for artificial intelligence application scenarios are the core driver of growth in China's server market, while the growing application of edge computing further supports it. The number of server-related companies in China has continued to grow over the past three years, with 7,135/7,242/5,607 new companies in 2019/2020/9M2021.

After two years of faster-than-industry growth of 17.8% and 20.1% in 2020 and 2021, the China server market is expected to grow at a CAGR of 14.1% in 2021-2025 to c.US$42.5bn.

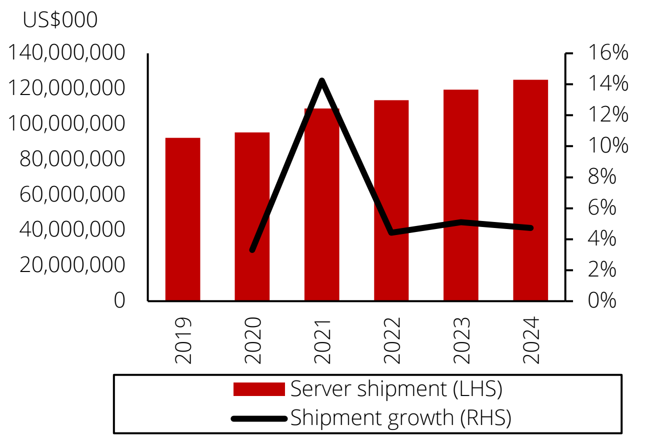
China's edge computing server market will grow at a CAGR of 22.2% in 2020-2025 to reach US$7.4bn, higher than 20.2% in the world, according to IDC. This is driven by the rapidly growing application in the public utility, finance, telecommunications, and manufacturing industries in China.

Worldwide traditional PC shipment and growth



Source: DBS HK

Worldwide Server shipment and growth



Source: IDC, DBS HK

Services and solutions industry

The COVID-19 pandemic significantly changed work dynamics globally, compelling businesses to prioritise the adoption of the cloud and remote working practices under social distancing measures. Furthermore, the pandemic accelerated digital transformation activities and the adoption of several technologies, including the DaaS model.

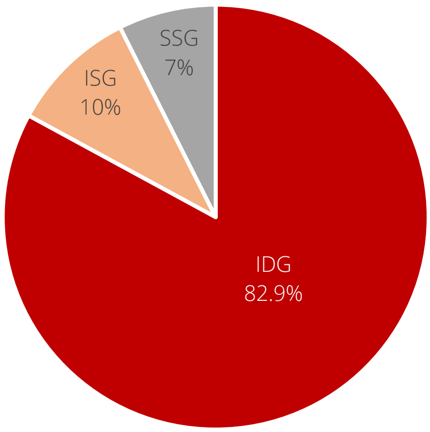
By 2025, more than 70% of corporate, enterprise-grade storage capacity will be deployed as consumption-based products – alternatives to IT capex budgeting – which is an increase from less than 40% in 2021.

The global device-as-a-service (DaaS) market reached US$30.75bn in 2020 and is expected to expand at a CAGR of 37.8% in 2021-28. The promising growth prospects of the market can be attributed to the growing demand for a subscription model that can allow end users, especially corporates, to switch from a capital expenditure-based model to an operating expenses-based model and still acquire the latest technology. The adoption of contact-based services and solutions by small and medium enterprises is expected to be favourable to the growth of the market.

Company Background

Founded in 1984 and listed in 1994, Lenovo is the largest PC vendor globally, with a 24% global market share in 2021. (1) Intelligent Devices Group (IDG), (2) Infrastructure Solutions Group (ISG), and (3) Solutions and Services Group (SSG) accounted for 89.6%, 10.4%, and 8.0% of FY3/20 gross revenue, respectively. Yang Yuanqing, the chief executive officer (CEO) and chairman of Lenovo, holds a c.9.3% stake in the company.

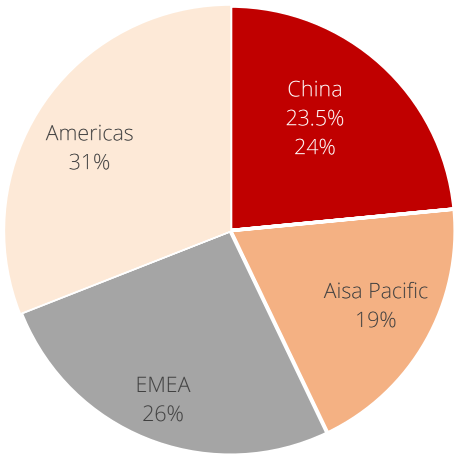
Revenue breakdown by segment (FY21)



Source: Company data, DBS HK

Geographically, Lenovo's revenue generation is evenly distributed across different regions. China, Asia Pacific, Europe-Middle East-Africa (EMEA), and the Americas account for 23.5%, 19.4%, 31.0%, and 26.2% of FY3/21 revenue, respectively.

Revenue breakdown by region(FY21)



Source: Company data, DBS HK

Lenovo generates the majority of its revenue from the sales of its hardware devices like PCs to both retail and commercial customers. It bought IBM's PC business and an iconic ThinkPad brand in 2005 and leveraged it to be the no.1 PC in the world market. Lenovo rapidly expanded its server business by acquiring IBM's x86 server division in 2014. In the same year, it acquired Motorola Mobility from Google for its smartphone production lines. It then brought together services and solutions capabilities across the company to construct a new Solutions and Services Group (SSG) in early 2021.

Lenovo acts as a vendor for its self-manufactured PC and smart devices (IDG). It is responsible for the whole manufacturing process, delivery logistics, and distribution channel (online) of its PC products. Non-PC revenue made up 18.7% of segment revenue in 3Q22. Their PCs see outstanding sales in both the commercial and retail sectors.

ISG's revenue includes servers, storage, software, and services sold under Lenovo server brands like ThinkAgile and System X from the end clients, and the cost of components, assembly costs, delivery logistics costs, or the cost of outsourcers are included in the cost of sales.

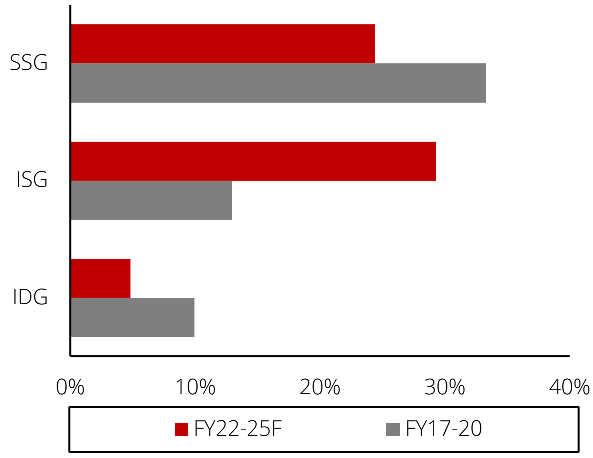
The solutions and services business brings together all the services and solutions capabilities across Lenovo's hardware business. Its recorded revenue included all the incremental business revenue across infrastructure services, attached services, managed services, and "X as a service" offerings including DaaS and Truscale™ from the end clients. The cost of hardware and the cost of outsourcing will be recorded in the cost of sales.

Lenovo's TruScale Infrastructure Services offers a broad portfolio of as-a-service solutions for its line of products, including servers, storage, integrated systems, and data centre networking. Third-party software and other enterprise components can be bundled as part of a TruScale solution. It also includes Lenovo's services to handle managed services, including hardware installation, deployment, system health management, maintenance, 24/7 support, and hardware removal at the end of the contract.

Competitive strengths

Lenovo is transforming its hardware-centred business into a service-led company. We expect its server business and services and solutions business to enjoy faster revenue growth than the industrial group. Its SSG revenue is expected to grow at a CAGR of 21.2% in FY21-FY25, compared with overall IT service industrial growth of 8.5%. Meanwhile, we expect ISG's revenue to increase at a CAGR of 31.3%. These are driven by the following:

FY21-25: Segment growth revenue comparison



Source: Company data, DBS HK

1) Resilient supply chain with a global footprint

Lenovo has a global footprint in operational hubs, research centres, and manufacturing facilities in over 60 countries. It has once again been ranked no.16 in the Gartner Top 25 Global Supply Chain, a testament to Lenovo's leadership as an operational centre of excellence in the global supply chain community.

This flexibility and resilience of Lenovo's global footprint reinforces that global sourcing, local delivery capabilities, and operational excellence are its core competencies and key factors in its ability to overcome complex challenges such as the component shortage, supply chain woes, and commodity price disorders in the past two years.

2) Reputable product

Lenovo's popular premium laptop brand "ThinkPad" is synonymous with a business laptop. It has gained a reputation for its excellent build quality, reliability, and durability. For instance, these were the only laptops certified for use at the International Space Station for several decades. Even now, ThinkPads are still one of the few devices that fulfil the high requirements in commercial applications.

After acquiring IBM's server line, Lenovo's server business has continued to innovate and invest in new technologies, and has now pioneered world-leading innovation in its servers. Its warm water cooling technology is reputable for power efficiency and energy savings. It has also retained its 1st rank in performance and reliability for x86 servers, holds records across 155 global workloads, and is in the top 500 list of the world's most powerful supercomputers in 2020, according to ICS.

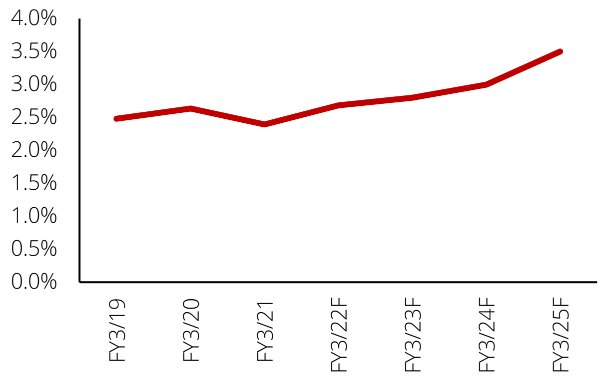
We expect its competitive edge in engineering and technical knowhow in both PCs and servers to provide a strong foundation for the development of the services and solutions business.

3) Massive incremental R&D investment to keep its competitive edge and help it pioneer in new growth areas.

Lenovo's relatively low R&D spending has always been a concern among investors. However, the company initiated its plan to double R&D investment over three years, developing core technology along with new IT architecture by end-2021. Moreover, in April 2022, it announced its plan to invest Rmb100bn in research covering the metaverse, cloud sectors, and the recruitment of over 12,000 engineers over the next five years. We expect the R&D expense-to-sales ratio to increase from 2.4% in FY3/21 to 3.5% in FY3/25.

The company pours resources into strengthening basic research and breakthrough innovations for future technologies including edge computing, metaverse powered by virtual reality and augmented reality, and cloud-based services. We expect this will not only drive its hardware business sales but also services and solutions revenue, which is highly correlated with hardware sales.

R&D expense-to-sales ratio



Source: Company data, DBS HK

Management & Strategy

Management composition

Lenovo's board comprises international representatives and operates based on global management principles. The company's top management committee consists of nine people from six different countries, who all have extensive international experience with the company's products, markets, and functions.

Key Management Team

Name	Position	Background and Experience
Yang Yuanqing	Executive director, chairman, and chief executive officer	- Joined Legend, as Lenovo was then known, at the age of 25, and was promoted to head Lenovo's personal computer business at 29, and elevated to CEO of the whole company in 2001 - Named the Best CEO in China by FinanceAsia in 2011 - Led Lenovo to buy Google's Motorola Mobility and IBM's x86 server business
Gianfranco Lanci	Corporate president and Chief operating officer	- 17 years of experience in Texas Instruments, served as country manager and division president in EMEA - Was instrumental in Acer's acquisition of TI's notebook division in 1997, and became CEO and president in 2008 - Leading Lenovo's Intelligent Device Group (IDG)
Doug Fisher	Senior vice president and chief security officer	- 24 years of experience in Intel and worked as senior vice president and general manager of the Software and Services Group before leaving - 10 years of experience at Hewlett-Packard
Yang Rui	Senior vice president and chief technology officer	- 18 years of research experience in Microsoft - Shipped numerous technologies and products at both Lenovo and Microsoft, including Lenovo LiCO, Lenovo ThinkCloud, Microsoft Bing Search, Microsoft Office, OneDrive, and HoloLens
Arthur HU	Senior vice president and chief information officer	- 8 years of experience as a consultant at McKinsey & Company; focused on high tech, strategy, and technology management, and operational and strategic programmes - Joined Lenovo in 2009 as director of business transformation in IT organisation
Luca Rossi	Senior vice president and president of IDG	- 6 years as EMEA president for Acer, 11 years as general manager for Asus Europe - Joined Lenovo as president of the EMEA and Latin America in 2015
Kirk Skaugen	Executive vice president and president of ISG	- 24 years of experience in Intel - Joined the group as president of the Data Centre Group in 2016
Liu Jun	Executive vice president and president of the China geography	- 29 years of experience in a broad range of leadership positions in Lenovo including president of the Consumer Business Group and leader of R&D, corporate strategy, the desktop PC business unit, and global supply chain
Ken Wong	Executive vice president and president of SSG	- Over 20 years of experience in the technology sector - Over 10 years of experience in IBM, joined Lenovo with its purchase of IBM's PC division in 2005
Wong Wai Ming	Executive vice president and chief financial officer	- Over 15 years of experience as an investment banker - Was a member of the Listing Committee of the HKEx

Source: Company data

CRITICAL FACTORS TO WATCH

Critical Factors

1) Services and solutions revenue/PC shipment volume ratio

Service and solution revenue/ PC shipment volume ratio is the revenue from service and solution divided by every unit of PC shipment volume. A higher services revenue generated from the sales of hardware devices indicate a more effective transformation of hardware sales transform into service revenue. Ample room for improvement of single-digit service attached rate comparing with over 30% of some peers. We expect it to grow in acceleration by 16.5% to 124.6 USD/ unit on the back of the industrial trend of growing penetration of DaaS and the higher service subscription potential of the premium and commercial-majored PC user base (c.60%).

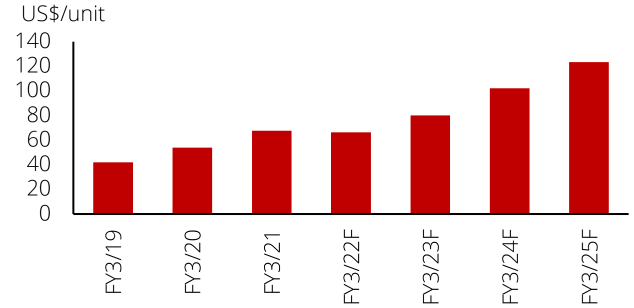
2). Server shipment volume (US$)

The volume of shipment is the direct proxy of the performance of the ISG. The higher the shipment volume, the higher the segment revenue of ISG. The segment's operational efficiency has been improving along with the increase in the scale of server shipment volume, benefiting from the economies of scale. There is ample room for growth in Lenovo's server market share as Lenovo only accounts for 6.2% of the worldwide server shipment in 2021. We forecast the shipment to further grow at a CAGR of 31.3% from FY21/22-FY24/25 to reach US$17.1bn.

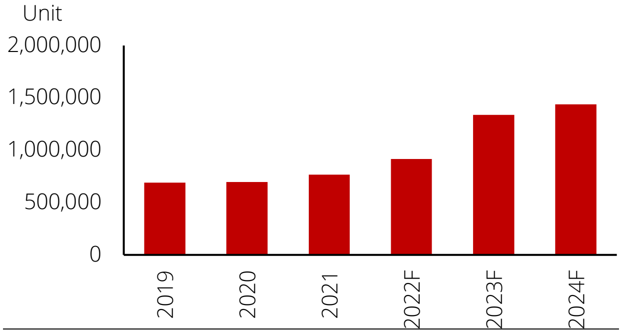
3) PC shipment volume

IDC segment accounted for the largest share of revenue of c.89.6% in FY3/21. 81.3% of the revenue comes from PC sales. Therefore, the PC sales shipment growth is the direct proxy of the segment growth besides the change in ASP. After two years of strong double-digit growth in the pandemic, we expect shipment growth remain stable at CAGR of 0.9% in FY22-FY25 based on its strong leading position in China to ride on the growing SEMB need and growing penetration in the premium devices like gaming laptop like "legion"

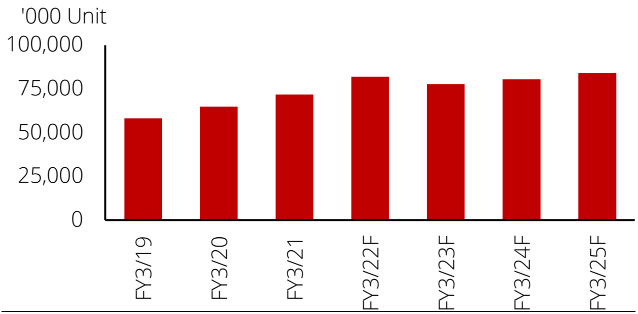
Service and solution revenue/ PC shipment



Server shipment volume



PC shipment volume



Source: Company, DBS HK

Balance Sheet:

Healthy balance sheet. The group had total debt of US$3.83bn and net cash of US$81.0m as of Dec 2021. Lenovo's historical capital expenditures primarily included investment in plant and machinery, patents, and technology. The capital commitments increased slightly from US$141.6m to US$157.1m, mainly due to incremental investment in financial assets.

Share Price Drivers:

New SSG business's operating profit is projected to grow at a CAGR of 31% in FY22-25F, boosting the company's operating margin to 5.3% in FY3/25 from 3.6% in FY3/21, as SSG's operating margin is 21.3% vs. 3.6% of the group.

FY23/24 revenue and net profit are 3%/9% and 8%/46% higher than the market, boosted by investment in the "Eastern Data, Western Computing" initiative and higher contributions from the services and solutions business

Key Risks:

Rigorous competition in PCs, smartphones, and servers. Longer-than-expected chip shortage and supply chain woes.

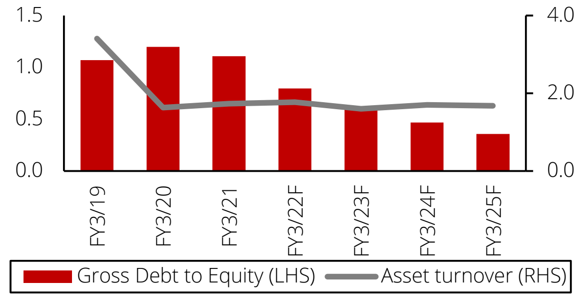
Environmental, Social, & Governance:

Hardware companies rely on their talents, especially research and development teams, to develop technology capabilities. Lenovo adopted the "Long-Term Incentive Scheme" (includes two types of awards, namely share appreciation rights and restricted share units), to align the interests of the company and its employees and motivate and retain existing talent and attract new talent as well.

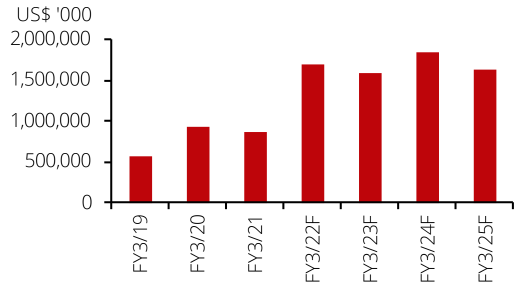
~~Company Background~~

Founded in 1984 and listed in 1994, Lenovo is the largest PC vendor globally, with a 24% global market share in 2021. Lenovo expanded into the server business through the acquisition of IBM's x86 server business and the smartphone business through the acquisition of Motorola Mobility in 2014. (1) Intelligent Devices Group (IDG), (2) Infrastructure Solutions Group (ISG), and (3) Solutions and services group(SSG) accounted for 89.6%, 10.4%, and 8.0% of FY3/20 gross revenue, respectively. Yang Yuanqing, the Chief Executive Officer (CEO) and chairman of Lenovo hold a c.9.3% stake in the company.

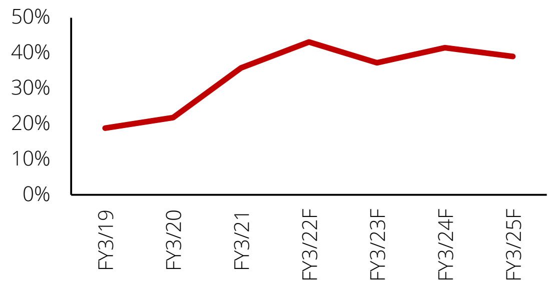
Leverage & Asset Turnover (x)



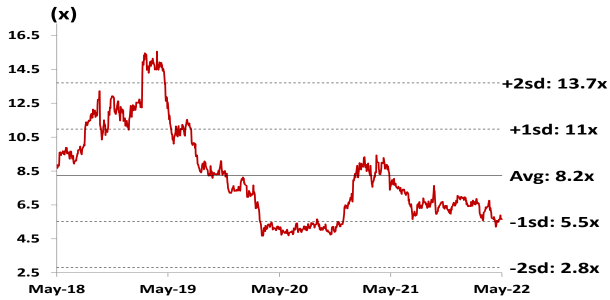
Capital Expenditure



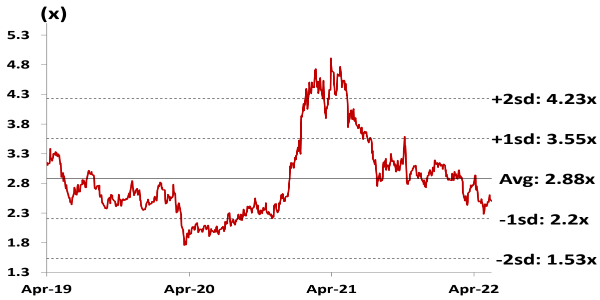
ROE



Forward PE Band



PB Band



Source: Company, DBS HK

Key Assumptions

FY Mar	2020A	2021A	2022F	2023F	2024F
ISG Revenue ('000 USD)	45,216.2	54,411.2	64,615.0	64,000.0	68,614.4
Operating Margin (%)	(4.1)	(2.7)	0.1	0.5	4.2
SSG Revenue ('000 USD)	N/A	N/A	5,445.0	6,240.2	8,222.0
Operating Margin (%)	N/A	N/A	21.3	23.2	24.2

Source: Company, DBS HK

Segmental Breakdown (US$ m)

FY Mar	2020A	2021A	2022F	2023F	2024F
Revenues (US$ m)					
IDG	45,216	54,411	64,615	64,000	68,614
ISG	5,500	6,331	7,562	8,407	13,876
SSG	0	0	5,445	6,240	8,222
Intersegment cancellation	0	0	(3,266)	(3,700)	(4,268)
Total	50,716	60,742	74,356	74,948	86,444
Operating profit (US$ m)					
IDG	2,302	3,107	4,712	4,800	5,415
ISG	(225)	(169)	5	40	587
SSG	0	0	1,162	1,448	1,990
Intersegment cancellation	0	0	(963)	(1,000)	(1,374)
Total	2,076	2,939	4,915	5,288	6,618
Operating Margins (%)					
IDG	5.1	5.7	7.3	7.5	7.9
ISG	(4.1)	(2.7)	0.1	0.5	4.2
SSG	N/A	N/A	21.3	23.2	24.2
Total	4.1	4.8	6.6	7.1	7.7

Source: Company, DBS HK

Income Statement (US$ m)

FY Mar	2020A	2021A	2022F	2023F	2024F
Revenue	50,716	60,742	74,356	74,948	86,444
Cost of Goods Sold	(42,359)	(50,974)	(61,921)	(62,141)	(70,832)
Gross Profit	8,357	9,768	12,434	12,806	15,612
Other Opng (Exp)/Inc	(6,919)	(7,587)	(9,572)	(9,713)	(11,375)
Operating Profit	1,439	2,180	2,862	3,094	4,237
Other Non Opg (Exp)/Inc	0	0	0	0	0
Associates & JV Inc	(15)	(32)	(4)	(7)	(8)
Net Interest (Exp)/Inc	(406)	(374)	(326)	(294)	(257)
Dividend Income	0	0	0	0	0
Exceptional Gain/(Loss)	0	0	0	0	0
Pre-tax Profit	1,018	1,774	2,532	2,793	3,972
Tax	(213)	(461)	(595)	(656)	(933)
Minority Interest	(86)	(102)	(151)	(166)	(236)
Preference Dividend	0	0	0	0	0
Net Profit	719	1,211	1,786	1,970	2,802
Net Profit before Except.	719	1,211	1,786	1,970	2,802
EBITDA	2,403	3,219	3,966	4,207	5,416
Growth					
Revenue Gth (%)	(0.6)	19.8	22.4	0.8	15.3
EBITDA Gth (%)	21.6	33.9	23.2	6.1	28.7
Opg Profit Gth (%)	22.1	51.6	31.3	8.1	36.9
Net Profit Gth (%)	10.6	68.4	47.5	10.3	42.2
Margins & Ratio					
Gross Margins (%)	16.5	16.1	16.7	17.1	18.1
Opg Profit Margin (%)	2.8	3.6	3.8	4.1	4.9
Net Profit Margin (%)	1.4	2.0	2.4	2.6	3.2
ROAE (%)	21.8	35.8	43.2	37.3	41.6
ROA (%)	2.3	3.5	4.2	4.2	5.5
ROCE (%)	9.6	13.7	18.1	17.4	20.9
Div Payout Ratio (%)	60.0	35.9	30.0	30.0	30.0
Net Interest Cover (x)	3.5	5.8	8.8	10.5	16.5

Source: Company, DBS HK

Balance Sheet (US$ m)

FY Mar	2020A	2021A	2022F	2023F	2024F
Net Fixed Assets	2,515	2,675	3,109	3,385	3,750
Invts in Associates & JVs	60	65	53	56	65
Other LT Assets	10,820	11,915	12,443	13,122	13,907
Cash & ST Invts	3,756	3,246	3,758	6,300	8,332
Inventory	4,947	6,381	8,442	8,509	9,447
Debtors	9,834	13,454	17,847	15,486	17,848
Other Current Assets	196	254	478	528	750
Total Assets	32,128	37,991	46,129	47,386	54,100
ST Debt	3,295	698	698	698	698
Creditors	18,813	25,332	31,624	31,243	35,293
Other Current Liab	1,150	1,342	1,643	1,776	2,088
LT Debt	1,565	3,300	3,300	3,300	3,300
Other LT Liabilities	3,246	3,709	3,840	3,941	4,192
Shareholder's Equity	3,198	3,559	4,717	5,858	7,627
Minority Interests	862	51	308	570	902
Total Cap. & Liab.	32,128	37,991	46,129	47,386	54,100
Non-Cash Wkg. Capital	(4,986)	(6,584)	(6,500)	(8,495)	(9,335)
Net Cash/(Debt)	(1,103)	(752)	(240)	2,302	4,334
Debtors Turn (avg days)	73.0	70.0	76.8	81.2	70.4
Creditors Turn (avg days)	159.8	161.4	170.9	188.0	174.3
Inventory Turn (avg days)	37.0	41.4	44.5	50.7	47.1
Asset Turnover (x)	1.6	1.7	1.8	1.6	1.7
Current Ratio (x)	0.8	0.9	0.9	0.9	1.0
Quick Ratio (x)	0.6	0.6	0.6	0.6	0.7
Net Debt/Equity (X)	0.3	0.2	0.0	CASH	CASH
Net Debt/Equity ex MI (X)	0.3	0.2	0.1	CASH	CASH
Capex to Debt (%)	19.3	21.8	42.4	39.8	46.3
Z-Score (X)	0.0	0.0	0.0	0.0	NA

Source: Company, DBS HK

Cash Flow Statement (US$ m)

FY Mar	2020A	2021A	2022F	2023F	2024F
Pre-Tax Profit	1,018	1,774	2,532	2,793	3,972
Dep. & Amort.	970	1,060	1,107	1,120	1,187
Tax Paid	(392)	(624)	(595)	(656)	(933)
Assoc. & JV Inc/(loss)	11	1	4	7	8
(Pft)/ Loss on disposal of FAs	(76)	(285)	0	0	0
Chg in Wkg.Cap.	276	1,661	(84)	1,996	840
Other Operating CF	403	65	394	(34)	175
Net Operating CF	2,210	3,653	3,358	5,226	5,247
Capital Exp.(net)	(938)	(872)	(1,695)	(1,590)	(1,852)
Other Invts.(net)	67	(58)	(342)	0	0
Invts in Assoc. & JV	(92)	(48)	9	(11)	(17)
Div from Assoc & JV	6	2	0	0	0
Other Investing CF	0	0	25	0	0
Net Investing CF	(957)	(976)	(2,003)	(1,601)	(1,869)
Div Paid	(431)	(434)	(536)	(591)	(841)
Chg in Gross Debt	334	(1,076)	0	0	0
Capital Issues	0	18	0	0	0
Other Financing CF	(141)	(1,736)	(214)	(281)	(351)
Net Financing CF	(238)	(3,228)	(749)	(872)	(1,192)
Currency Adjustments	(126)	69	(117)	(211)	(155)
Chg in Cash	888	(483)	488	2,542	2,032
Opg CFPS (US$)	0.16	0.17	0.30	0.28	0.38
Free CFPS (US$)	0.11	0.23	0.14	0.31	0.29

Source: Company, DBS HK

DBS HK recommendations are based on an Absolute Total Return* Rating system, defined as follows:
STRONG BUY (>20% total return over the next 3 months, with identifiable share price catalysts within this time frame)
BUY (>15% total return over the next 12 months for small caps, >10% for large caps)
HOLD (-10% to +15% total return over the next 12 months for small caps, -10% to +10% for large caps)
FULLY VALUED (negative total return, i.e., > -10% over the next 12 months)
SELL (negative total return of > -20% over the next 3 months, with identifiable share price catalysts within this time frame)

**Share price appreciation + dividends*

Completed Date: 16 May 2022 12:20:11 (HKT)
Dissemination Date: 16 May 2022 14:00:39 (HKT)

Sources for all charts and tables are DBS HK unless otherwise specified.

ANALYST CERTIFICATION

The research analyst(s) primarily responsible for the content of this research report, in part or in whole, certifies that the views about the companies and their securities expressed in this report accurately reflect his/her personal views. The analyst(s) also certifies that no part of his/her compensation was, is, or will be, directly or indirectly, related to specific recommendations or views expressed in the report. The research analyst (s) primarily responsible for the content of this research report, in part or in whole, certifies that he or his associate[1] does not serve as an officer of the issuer or the new listing applicant (which includes in the case of a real estate investment trust, an officer of the management company of the real estate investment trust; and in the case of any other entity, an officer or its equivalent counterparty of the entity who is responsible for the management of the issuer or the new listing applicant) and the research analyst(s) primarily responsible for the content of this research report or his associate does not have financial interests[2] in relation to an issuer or a new listing applicant that the analyst reviews. DBS Group has procedures in place to eliminate, avoid and manage any potential conflicts of interests that may arise in connection with the production of research reports. The research analyst(s) responsible for this report operates as part of a separate and independent team to the investment banking function of the DBS Group and procedures are in place to ensure that confidential information held by either the research or investment banking function is handled appropriately. There is no direct link of DBS Group's compensation to any specific investment banking function of the DBS Group.

COMPANY-SPECIFIC / REGULATORY DISCLOSURES

1. DBS Bank Ltd, DBS HK, DBSVS or their subsidiaries and/or other affiliates have a proprietary position in Lenovo Group Ltd (992 HK) recommended in this report as of 11 May 2022.

2. Compensation for investment banking services:
   DBSVUSA does not have its own investment banking or research department, nor has it participated in any public offering of securities as a manager or co-manager or in any other investment banking transaction in the past twelve months. Any US persons wishing to obtain further information, including any clarification on disclosures in this disclaimer, or to effect a transaction in any security discussed in this document should contact DBSVUSA exclusively.

3. Disclosure of previous investment recommendation produced:
   DBS Bank Ltd, DBSVS, DBS HK, their subsidiaries and/or other affiliates of DBSVUSA may have published other investment recommendations in respect of the same securities / instruments recommended in this research report during the preceding 12 months. Please contact the primary analyst listed on page 1 of this report to view previous investment recommendations published by DBS Bank Ltd, DBS HK, DBSVS, their subsidiaries and/or other affiliates of DBSVUSA in the preceding 12 months.

[1] An associate is defined as (i) the spouse, or any minor child (natural or adopted) or minor step-child, of the analyst; (ii) the trustee of a trust of which the analyst, his spouse, minor child (natural or adopted) or minor step-child, is a beneficiary or discretionary object; or (iii) another person accustomed or obliged to act in accordance with the directions or instructions of the analyst.

[2] Financial interest is defined as interests that are commonly known financial interest, such as investment in the securities in respect of an issuer or a new listing applicant, or financial accommodation arrangement between the issuer or the new listing applicant and the firm or analysis. This term does not include commercial lending conducted at arm's length, or investments in any collective investment scheme other than an issuer or new listing applicant notwithstanding the fact that the scheme has investments in securities in respect of an issuer or a new listing applicant.

RESTRICTIONS ON DISTRIBUTION

General	This report is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation.
Australia	This report is being distributed in Australia by DBS Bank Ltd, DBSVS or DBSV HK. DBS Bank Ltd holds Australian Financial Services Licence no. 475946. DBS Bank Ltd, DBSVS and DBSV HK are exempted from the requirement to hold an Australian Financial Services Licence under the Corporation Act 2001 ("CA") in respect of financial services provided to the recipients. Both DBS Bank Ltd and DBSVS are regulated by the Monetary Authority of Singapore under the laws of Singapore, and DBSV HK is regulated by the Hong Kong Securities and Futures Commission under the laws of Hong Kong, which differ from Australian laws. Distribution of this report is intended only for "wholesale investors" within the meaning of the CA.
Hong Kong	This report is being distributed in Hong Kong by DBS Bank Ltd, DBS Bank (Hong Kong) Limited and DBS Vickers (Hong Kong) Limited, all of which are registered with or licensed by the Hong Kong Securities and Futures Commission to carry out the regulated activity of advising on securities. DBS Bank Ltd., Hong Kong Branch is a limited liability company incorporated in Singapore.
Indonesia	This report is being distributed in Indonesia by PT DBS Vickers Sekuritas Indonesia.
Malaysia	This report is distributed in Malaysia by AllianceDBS Research Sdn Bhd ("ADBSR"). Recipients of this report, received from ADBSR are to contact the undersigned at 603-2604 3333 in respect of any matters arising from or in connection with this report. In addition to the General Disclosure/Disclaimer found at the preceding page, recipients of this report are advised that ADBSR (the preparer of this report), its holding company Alliance Investment Bank Berhad, their respective connected and associated corporations, affiliates, their directors, officers, employees, agents and parties related or associated with any of them may have positions in, and may effect transactions in the securities mentioned herein and may also perform or seek to perform broking, investment banking/corporate advisory and other services for the subject companies. They may also have received compensation and/or seek to obtain compensation for broking, investment banking/corporate advisory and other services from the subject companies. Wong Ming Tek, Executive Director, ADBSR
Singapore	This report is distributed in Singapore by DBS Bank Ltd (Company Regn. No. 196800306E) or DBSVS (Company Regn No. 198600294G), both of which are Exempt Financial Advisers as defined in the Financial Advisers Act and regulated by the Monetary Authority of Singapore. DBS Bank Ltd and/or DBSVS, may distribute reports produced by its respective foreign entities, affiliates or other foreign research houses pursuant to an arrangement under Regulation 32C of the Financial Advisers Regulations. Where the report is distributed in Singapore to a person who is not an Accredited Investor, Expert Investor or an Institutional Investor, DBS Bank Ltd accepts legal responsibility for the contents of the report to such persons only to the extent required by law. Singapore recipients should contact DBS Bank Ltd at 6878 8888 for matters arising from, or in connection with the report.
Thailand	This report is being distributed in Thailand by DBS Vickers Securities (Thailand) Co Ltd. For any query regarding the materials herein, please contact [Chanpen Sirithanarattanakul] at [research@th.dbs.com]
United Kingdom	This report is produced by DBS HK which is regulated by the Hong Kong Monetary Authority This report is disseminated in the United Kingdom by DBS Vickers Securities (UK) Ltd ("DBSVUK"). DBSVUK is authorised and regulated by the Financial Conduct Authority in the United Kingdom. In respect of the United Kingdom, this report is solely intended for the clients of DBSVUK, its respective connected and associated corporations and affiliates only and no part of this document may be (i) copied, photocopied or duplicated in any form or by any means or (ii) redistributed without the prior written consent of DBSVUK. This communication is directed at persons having professional experience in matters relating to investments. Any investment activity following from this communication will only be engaged in with such persons. Persons who do not have professional experience in matters relating to investments should not rely on this communication.

Dubai International Financial Centre	This communication is provided to you as a Professional Client or Market Counterparty as defined in the DFSA Rulebook Conduct of Business Module (the "COB Module"), and should not be relied upon or acted on by any person which does not meet the criteria to be classified as a Professional Client or Market Counterparty under the DFSA rules. This communication is from the branch of DBS Bank Ltd operating in the Dubai International Financial Centre (the "DIFC") under the trading name "DBS Bank Ltd. (DIFC Branch)" ("DBS DIFC"), registered with the DIFC Registrar of Companies under number 156 and having its registered office at units 608 - 610, 6th Floor, Gate Precinct Building 5, PO Box 506538, DIFC, Dubai, United Arab Emirates. DBS DIFC is regulated by the Dubai Financial Services Authority (the "DFSA") with a DFSA reference number F000164. For more information on DBS DIFC and its affiliates, please see http://www.dbs.com/ae/our--network/default.page. Where this communication contains a research report, this research report is prepared by the entity referred to therein, which may be DBS Bank Ltd or a third party, and is provided to you by DBS DIFC. The research report has not been reviewed or authorised by the DFSA. Such research report is distributed on the express understanding that, whilst the information contained within is believed to be reliable, the information has not been independently verified by DBS DIFC. Unless otherwise indicated, this communication does not constitute an "Offer of Securities to the Public" as defined under Article 12 of the Markets Law (DIFC Law No.1 of 2012) or an "Offer of a Unit of a Fund" as defined under Article 19(2) of the Collective Investment Law (DIFC Law No.2 of 2010). The DFSA has no responsibility for reviewing or verifying this communication or any associated documents in connection with this investment and it is not subject to any form of regulation or approval by the DFSA. Accordingly, the DFSA has not approved this communication or any other associated documents in connection with this investment nor taken any steps to verify the information set out in this communication or any associated documents, and has no responsibility for them. The DFSA has not assessed the suitability of any investments to which the communication relates and, in respect of any Islamic investments (or other investments identified to be Shari'a compliant), neither we nor the DFSA has determined whether they are Shari'a compliant in any way. Any investments which this communication relates to may be illiquid and/or subject to restrictions on their resale. Prospective purchasers should conduct their own due diligence on any investments. If you do not understand the contents of this document you should consult an authorised financial adviser.
United States	This report was prepared by DBS HK. DBSVUSA did not participate in its preparation. The research analyst(s) named on this report are not registered as research analysts with FINRA and are not associated persons of DBSVUSA. The research analyst(s) are not subject to FINRA Rule 2241 restrictions on analyst compensation, communications with a subject company, public appearances and trading securities held by a research analyst. This report is being distributed in the United States by DBSVUSA, which accepts responsibility for its contents. This report may only be distributed to Major U.S. Institutional Investors (as defined in SEC Rule 15a-6) and to such other institutional investors and qualified persons as DBSVUSA may authorize. Any U.S. person receiving this report who wishes to effect transactions in any securities referred to herein should contact DBSVUSA directly and not its affiliate.
Other jurisdictions	In any other jurisdictions, except if otherwise restricted by laws or regulations, this report is intended only for qualified, professional, institutional or sophisticated investors as defined in the laws and regulations of such jurisdictions.

DBS Bank (Hong Kong) Limited

13th Floor One Island East, 18 Westlands Road, Quarry Bay, Hong Kong

Tel: (852) 3668-4181, Fax: (852) 2521-1812

DBS Regional Research Offices

HONG KONG
DBS Bank (Hong Kong) Ltd
Contact: Dennis Lam
13th Floor One Island East,
18 Westlands Road, Quarry Bay, Hong Kong
Tel: 852 3668 4181
Fax: 852 2521 1812
e-mail: dbsvhk@dbs.com

SINGAPORE
DBS Bank Ltd
Contact: Janice Chua
12 Marina Boulevard,
Marina Bay Financial Centre Tower 3
Singapore 018982
Tel: 65 6878 8888
e-mail: groupresearch@dbs.com
Company Regn. No. 196800306E

INDONESIA
PT DBS Vickers Sekuritas (Indonesia)
Contact: Maynard Priajaya Arif
DBS Bank Tower
Ciputra World 1, 32/F
Jl. Prof. Dr. Satrio Kav. 3-5
Jakarta 12940, Indonesia
Tel: 62 21 3003 4900
Fax: 6221 3003 4943
e-mail: indonesiaresearch@dbs.com

THAILAND
DBS Vickers Securities (Thailand) Co Ltd
Contact: Chanpen Sirithanarattanakul
989 Siam Piwat Tower Building,
9th, 14th-15th Floor
Rama 1 Road, Pathumwan,
Bangkok Thailand 10330
Tel. 66 2 857 7831
Fax: 66 2 658 1269
e-mail: research@th.dbs.com
Company Regn. No 0105539127012
Securities and Exchange Commission, Thailanc